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NOTES ON GEOGRAPHIC DISTRIBUTION

Diclidurus albus Wied-Neuwied, 1820 (Chiroptera: Emballonuridae): First record of the species in the state of Paraíba, Brazil

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ABSTRACT: *Diclidurus albus* Wied-Neuwied, 1820 has few known records in Brazil. This study reports the easternmost record of the species and the first for the state of Paraíba, Brazil. One adult female specimen of *D. albus* was captured in the forest canopy of Reserva Biológica Guaribas – SEMA 3. This record extends the distribution of *D. albus* to the north in the Brazilian Atlantic Forest.

The bat family Emballonuridae includes 13 genera, among these is *Diclidurus* Wied-Neuwied, 1820 (Kitchener 1989; Koopman 1993; Simmons 2005; Reis *et al*. 2007). The genus includes four Neotropical species that are popularly known as ghost bats because of their whitish color (Ceballos and Medellín 1988; Jones and Hood 1993): *Diclidurus albus* Wied-Neuwied, 1820; *D. ingens* Hernández-Camacho, 1955; *D. isabella* (Thomas, 1920); and *D. scutatus* Peters, 1869. The species from this genus are considered rare and little is known about their biology, ecology, and distribution (Eisenberg and Redford 1999; Emmons and Feer 1999; Hood and Gardner 2008), mainly because of the low rate of capture, as they fly high in open areas and in the forest canopy (Ceballos and Medellín 1988; Linares 1998; Lim *et al*. 1999; Ochoa G. *et al*. 2008).

Diclidurus albus is the only species found west of the Andes, with the widest known distribution of the genus ocurring from Mexico to the northwest of Peru, Brazil and the island of Trinidad in an altitudinal range from sea level to 1700 m.a.s.l. (Ceballos and Medellín 1988; Simmons 2005; Hood and Gardner 2008; Moscoso and Tirira 2009). The type locality of *D. albus* is Canavieiras, Pardo River, Bahia, Brazil (Vieira 1942). Two subspecies are currently recognized for this species: *Diclidurus albus albus*, distributed in Guyana, Surinam, Brazil and Peru; and *Diclidurus albus virgo*, occurring from Mexico south to Ecuador, Colombia, Venezuela and Trinidad (Simmons 2005; Hood and Gardner 2008).

Diclidurus albus is an aerial insectivorous bat (Kalko 1995). The species feeds above the canopy using low calls with very long pulse intervals during fast flight and starts call alternations when approaching either prey or obstacles (Jung *et al.* 2007). Deciduous and moist tropical forests and vegetation with large leaves, like palms (especially Cocos nucifera) or banana, are the preferences of the species (Cuervo *et al. 1*986; Ceballos and Medellín 1988; Muñoz 2001; Sodré and Uieda 2006; Hood and Gardner 2008). Some individuals have been recorded in open an urban areas, like human constructions and near mangroves, rivers and the sea (Moscoso and Tirira 2009). The reproductive period of *D. albus* in Mexico seems to extend from January to June and the copulation is thought to occur in January or February (Ceballos and Medellín 1988). During reproduction, groups of up to four individuals, generally including one male and three females, may gather in shelters (Ceballos and Medellín 1988).

There are few records of the species in Brazil, which are restricted to the states of Amazonas (Reis and Peracchi 1987, Bernard and Fenton 2002, Lim and Engstrom 2005, Castro-Arellano *et al*. 2007, Bernard *et al*. 2011, Peracchi *et al*. 2011, Martins *et al*. 2012), Pará (Peracchi *et al*. 2011), Amapá (Peracchi *et al*. 1984, Peracchi *et al*. 2011), Espirito Santo (Mendes *et al*. 2010, Peracchi *et al*. 2011), Bahia (Oliveira 2004, Vaz 2005, Faria *et al*. 2006, Peracchi *et al*. 2011), Rondônia (Peracchi *et al*. 2011) and Pernambuco (Feijó and Langguth, 2011) (Figure 1). Despite being reported in a neighboring state, the species has never been recorded in the state of Paraíba.

Here, we report the easternmost record of this species and the first for the state of Paraíba, Brazil (Figure 1). The registry occurred during a canopy ornithological mist-net study developed under permit number: 32654-1, authentication code: 74714939, from SISBIO system at Instituto Chico Mendes de Conservação da Biodiversidade (ICMBio). One adult female specimen of *D. albus* was captured, photographed and then released (Figure 2). The capture occurred in the forest of the Reserva Biológica Guaribas – SEMA 3 remnant (6°48'17.82" S 35°4'59.94" W, Figure 1), in the municipality of Rio Tinto on January 18, 2012 at 14:00 h. It was a cloudy, rainy day with 88 % relative humidity and 26.7 ºC. The mist-net was installed at a height of 20 m above the ground on the forest canopy, next to a natural glade surrounded by trees with an average height of 25 m and a dense understory formed by secondary growth vegetation.

The identification of the specimen was possible because of its characteristic coloration and morphology, associated with the distribution of the other congeneric species (Hood and Gardner 2008; Dalponte and Aguiar 2009). The specimen had large black eyes, no wing sacs, two valved-chambered black uropatagial glands, white and rounded ears, as well as long and silky white hair without variation in the color between the base and the edge. Its skin had a whitish coloration, which was semi-transparent at the wings, with a visibly red innervation. Its external measurements (mm) are as follows: forearm length = 58.9; head and body length = 62.3; total length = 74.7; ear length = 10.6; wingspan = 225; weight = 13 g.

The forest remnant has a total area of 338 ha approximately 3 km away from a mangrove area and 13 km from the sea and is characterized by secondary semi-deciduous lowland forest, associated with savannahs and transitional areas. Its climate is predominantly hot and humid, with average annual temperatures from 24 to 26°C, with the annual maximum of about 36°C (Barbosa *et al*. 2011). The vegetation is under a natural regeneration process after episodes of logging and other forms of human pressure which occurred decades ago (MMA/ IBAMA 2003).

The capture of *D. albus* in a remnant of Atlantic Forest in the state of Paraíba may indicate the possible presence of other important bat species in the state, or at least more species that fly high and are underestimated in understory studies. We report the extension of the distribution of *D. albus* to about 150 km to the north of the biome Furthermore, we recommend the conservation of the Atlantic Forest fragments of the region and the inclusion of the upper strata of these fragments in bat surveys.

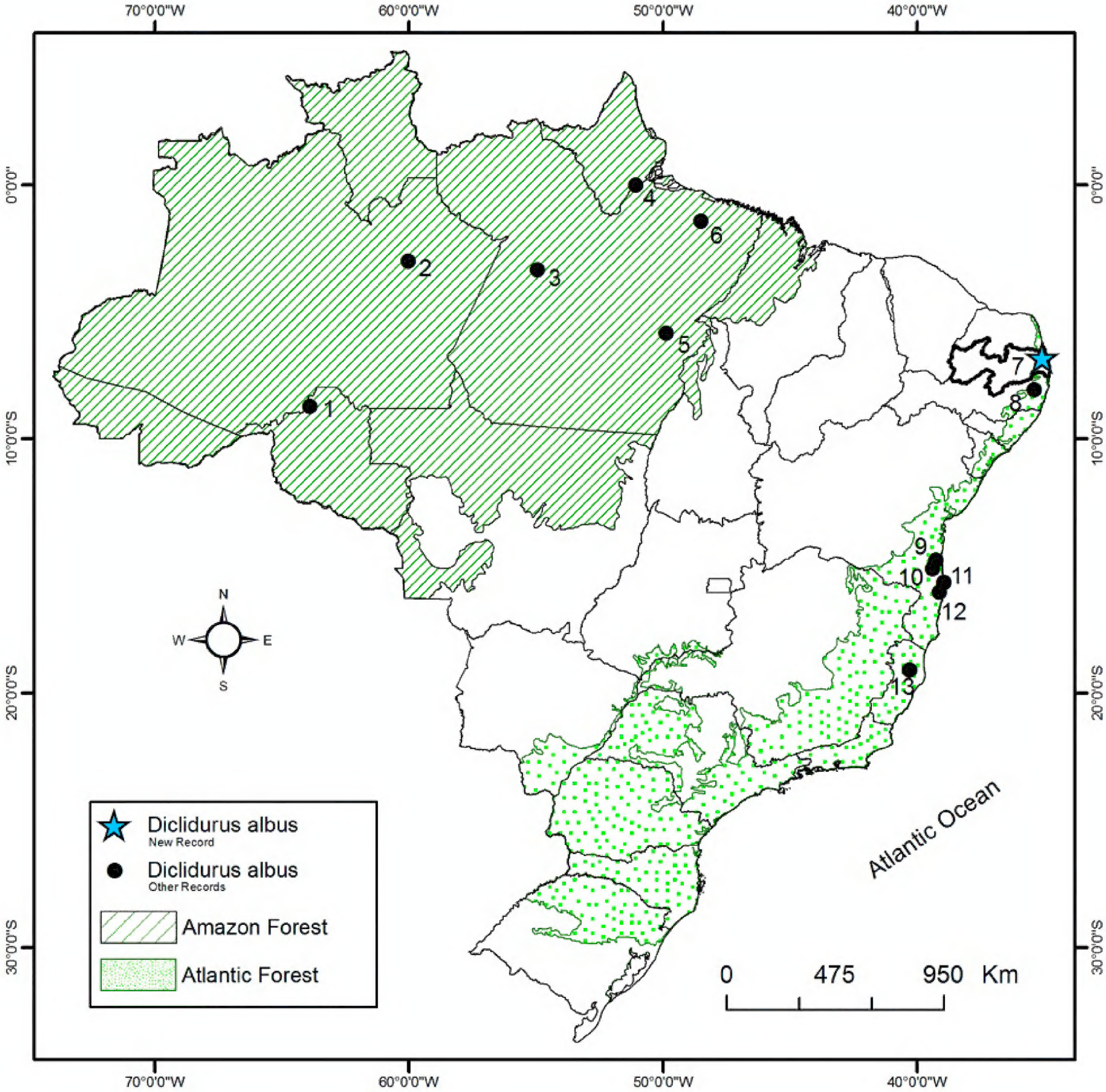

Figure 1. Distribution of *Diclidurus albus* in Brazil (star = new record; circles = existing records). Codes are as follows: 1: Porto Velho, RO (Peracchi *et al.* 2011); 2: Manaus, AM (Reis and Peracchi 1987, Bernard and Fenton 2002, Lim and Engstrom 2005, Peracchi *et al.* 2011, Bernard *et al.* 2011); 3: Floresta Nacional do Tapajós, PA (Castro-Arellano *et al.* 2007); 4: Tracajatuba, AP (Peracchi *et al.* 1984, Peracchi *et al.* 2011); 5: Floresta Nacional do Carajás, PA (Martins *et al.* 2012); 6: Belém, PA (Peracchi *et al.* 2011); 7: Rio Tinto, PB (this study); 8: Pernambuco State (Feijó and Langguth 2011); 9: Itabuna, BA (Faria *et al.* 2006); 10: Buerarema, BA (Vaz 2005); 11: Canavieiras, BA (Peracchi *et al.* 2011); 12: Rio Jequitinhonha, BA (Oliveira 2004); 13: Espírito Santo State (Mendes *et al.* 2010, Peracchi *et al.* 2011).

Figure 2. Live photograph of an adult female of *Diclidurus albus* captured in the Atlantic Forest fragment of Reserva Biológica Guaribas – SEMA 3.

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